TYLER (L.)

Diphtheria and Trachеotomy.

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LACHLAN TYLER, M.D.,

OF WASHINGTON, D. C.

Read before the Medical Society of the District of Columbia, April 13, 1887.

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DIPHTHERIA AND TRACHEOTOMY.

As common and fatal as this disease is, the profession is still more or less at variance regarding a discriminating definition of diphtheria. In the opinion of many it is a malady separate and distinct from that other, so closely allied to it and termed pseudo-membranous croup; while on the part of others the belief is that the two diseases are really identical.

It is partly with the hope of eliciting from the members of this society an expression of opinion concerning the questions of unity and duality that this brief communication is presented. Only by free and full discussion, if necessary oft repeated, can a matter in such great dispute ever be brought to final settlement. If there be but one disease—diphtheria—that fact had better be plainly and decisively conceded, and the mind thenceforth disabused of any further idea to the contrary.

It is not a difficult task to appreciate the harm which might be perpetrated by a confusion of ideas consequent upon a false conception of the illness to be treated. Under such circumstances the sthenic condition attributed to so-called membranous croup would be sufficient to restrain the hand in the beginning from administering appropriate remedies in anticipation of the treacherous onset of the asthenia of diphtheria, which, as subsequent events would show, had all along been in existence. According to my own judgment, no distinction can be safely drawn in practice between the two diseases, and as a rule there is no good reason for making any. Even in the minds of those who cling to the opposite belief a doubt is harbored, in the greater number of cases, as to which is presented, and the precaution

is nearly always very wisely taken to provide against the possibility of its being diphtheria. No comment is necessary upon making this simple statement.

The effort to erect a pathology for each, which in essential particulars should possess a sufficient number of points of difference to distinguish them, has had no good results, and, indeed, can be said to have practically ended in failure. The etiological factors, also, traceable in the history of the two affections, have not been shown to be dissimilar with any pronounced exactness.

The greatest mistakes have over and again occurred by relying upon the peculiarities of the membranous deposit for distinctive evidence of the existence of one or the other disease. The simple truth would seem to be that it varies in character according to the severity and degree of penetration of the inflammatory process. How far and in what manner this process is influenced by the constitutional state of the patient is not always clearly indicated. The local effects are sometimes as severe in those with little bodily vigor as in the more robust, leaving whatever may be the amount of inflammation to be principally ascribed to the localization of the specific cause of the disease.

In fatal cases of pseudo-membranous croup it is maintained that death is primarily the result of asphyxia, due to membranous stenosis of the larynx; while in diphtheria the idea obtains that it is more in consequence of a septicæmia or toxæmia, ultimately producing paralysis of the vital forces.

It is within the experience, however, of almost every practitioner to have seen cases of the former develop into well recognized diphtheria, and terminate accordingly; and of the latter disease, commencing in the most typical manner in the fauces, pass downwards and become complicated with croup. On account of these facts it cannot but be admitted, therefore, that the two diseases are, at any rate,

interchangable; and it would be going only a step further to believe that primary diphtheritic laryngitis might occur as well as diphtheritic faucitis or pharyngitis.

If the two diseases are the same, the difference in contagiousness between them has been explained by their respective situations; and that in temperature in like manner. In other words, if the larynx alone is attacked the infectious principle is situated at a safer distance than when located in the pharynx; and, according to observation, the temperature is likewise increased when the disease occurs at that point. Glandular enlargements accompany membranous croup as well as diphtheria, and in each are dependent upon the degree of inflammatory action which may be going on. They have been noticeably absent in some of the cases I have attended.

The same sequelæ, including paralysis, are witnessed after either affection; the plain truth being that fewer cases of diphtheritic laryngitis survive, and they are, therefore, seen oftener when the diphtheritic process has remained confined to the pharynx.

All pseudo-membranous sore throats, occurring idiopathically, should for safety's sake, if for no other reason, be set down and treated as though they were diphtheria. Those resulting from traumatic causes should of course have a different significance attached to them, and receive attention in accordance therewith.

I consider it necessary to mention the name of only one man who may very properly be placed as authority at the head of those believing diphtheria and croup to be identical, viz: Jacobi. "In fact everything that has been written," says Dr. Joseph E. Winters, of New York, "by those who have contended that membranous croup is an independent disease, distinct from diphtheria, is ~~nearly~~ merely a compromise, and does not give one tenable diagnostic characteristic between them." To this I will add

that there may be certain *library* differences between the two diseases, but none of clinical value.

The question as to whether diphtheria is primarily a local or a constitutional disease still remains a mooted one. That it is a local disease with a constitutional expression is, in my opinion, the correct conclusion, but the fact that it is opposed by many whose prominence in the profession entitles them to be heard with respect, and merits for their views the most deferential consideration, should prevent any one from assuming an attitude at all dogmatic in the premises. Besides a considerable number of others, Oertel may be cited as advocating the theory that diphtheria commences in the throat, and that subsequently the whole system becomes infected by septic absorption through the lymphatic channels.

All parties, however, occupy neutral ground in dealing practically with the subject, for from either standpoint, in order to gain any advantage over the disease, the treatment, so far at all generally approved, when carried out in full is always the same in principle and effect.

In regard to treatment it is well to say that too much emphasis cannot be employed in condemning the idea that there is a specific remedy for diphtheria in the possession of anyone. It is a threadbare argument that if such a remedy existed the great multitude advised and employed would not have been forthcoming, nor undergo such frequent additions. In computing results from the various drugs administered for the cure of diphtheria nothing much more favorable to one than to another of them can be discovered; and without being too sceptical, the belief might well be entertained that at times recovery from the disease was in the main dependent upon the mildness of its course and the persistency with which watchful care was observed.

The statistics of Dr. N. Lunin, of St. Petersburg, published in 1885 (*Medical Record*, vol. 28, No. 3),

afford a fair idea of the utility of certain fashionable remedies. Two hundred and ninety-six cases were treated in the Children's Hospital of the Princess of Oldenburg. All the children, with the exception of twenty-five, are represented as having been well developed and well nourished. The list of remedies used was composed of corrosive sublimate, iron, chinolin, resorcin, bromine and turpentine. In the "phlegmonous-septic" form of the disease, according to his classification, iron proved superior to any of the others, the deaths under its administration, however, reaching 76.5 per cent. In the "fibrinous" form the oil of turpentine gave the best results, only 8.3 per cent. of the cases treated with it dying.

The treatment by iron and chlorate of potassium internally seems to have become the one quite generally agreed upon as being the most satisfactory. The practice of administering iron, however, in such enormous doses to young children as ℥j, or more, frequently repeated, finds, and I think rightly so, little favor with the profession at large.

The effort to use the spray too frequently and in spite of any violent resistance on the part of the child, is, in my judgment, an unjustifiable and hurtful procedure, in view of the additional amount of exhaustion it is likely to produce. If its use, however, can be accomplished without unduly exciting the little patient to opposition, no question can be raised concerning the benefit it is capable of conferring.

The insufflation of sulphur and other powders has at various times been highly recommended, but I have never witnessed any remarkably good results from it.

Inunction with the oleate of mercury—a method of treatment, by the way, strongly advocated before this Society several years ago—has in my hands failed to produce the good which was to be expected.

Remembering the asthenic tendency of the disease.

it can only be in exceptional cases, and when our one desire is to ~~lessen~~ loosen and render easier of expulsion a very thick and tenacious membrane, that such a depressant as pilocarpine can be given with any degree of safety or propriety. Its use for eliminative purposes, in reference to the *materies morbi* of the disease, might far better be discontinued, as it is undoubtedly too dangerous a medicine with which to make such experimental tests. It is safer to rely upon ipecac, zinc, turpeth mineral, or some other emetic whose effects, though practically the same so far as dislodging the membrane goes, are, comparatively speaking, less permanent in duration, and could, at any rate, more certainly be counteracted, should the occasion arise, by stimulants given with timely precaution.

The carbonate of ammonium, given alone in full and frequent doses from the outset, and, if subsequently required, in conjunction with whisky, is a remedy in which, I am convinced, too much faith cannot be placed. Not only as a diffusible stimulant is it exceedingly valuable, but as a solvent of the diphtheritic membrane also, in which capacity it possibly excels all others by the mode of its action through the circulation.

Quinine deserves especial recommendation. Given in tonic doses—preferably in the form of the oleate to the very young, by inunction—it seems to be potential in exercising a favorable influence in what might be termed its own peculiar way, and imparts to the physician a certain feeling of security and satisfaction difficult to define.

Steaming, hot poultices, rubefacients—of which turpentine and camphor liniment are probably the best examples—and opiates to quiet restlessness and procure sleep whenever necessary, complete the catalogue of remedies of which I deem it worth while to speak.

An ample supply of concentrated nourishment is

always of prime importance; but here, at least, I do not believe in what is called forced alimentation. Diphtheria becoming an acute wasting disease, must necessarily be accompanied by greater or less functional enfeeblement on the part of the digestive organs, which to be overtasked under such circumstances would only lead to complications of a character most certain to aggravate the preëxisting low condition of the patient.

Before leaving this part of the subject, I wish to say that any conflict of judgment arising between physicians in attendance upon any case of diphtheria —each with a hobby of his own concerning the most appropriate treatment to be adopted—is, in the present state of things, entirely uncalled for; since, as has been mentioned, there is no specific for the disease and, after all, there is very little difference in the results, it matters not what particular method of treatment is practiced. The principal aim should be to prosecute any recognized mode of treatment which happens to be selected in a thorough and systematic manner, and without any vacillation, to the end.

The operation of tracheotomy for the relief of the symptoms of diphtheritic laryngitis, while certainly not a difficult one to perform if ordinary care be exercised, remains in a more unsettled state than almost any other in surgery in reference to the exact time when it should be resorted to, and the extent to which benefit is conferred by it. With the fact confronting us that many desperate cases recover under simple medicinal treatment, it cannot be successfully disputed that after the operation just as good grounds often exist for believing that recovery took place in spite of it, as that it was the means of saving the patient from what would have been otherwise inevitable death.

The difficulty of deciding at the bedside upon the appropriate moment for the operation can only be overcome by authoritatively establishing it as the

necessary practice immediately upon the occurrence of invasion of the larynx by the local process, as shown by the altered tones of the voice, and by the slightest interference with respiration.

Ranke, of Munich, in a paper read at the fifty-eighth Congress of German Naturalists and Physicians, Strasburg, September, 1885 (*Medical Record*, vol. xxviii, No. 25), reported that upon the appearance of these symptoms he had operated the preceding seven and one-half years in 45 cases with 19 fatal results, the number of recoveries therefore amounting to 57.8 per cent. This is a higher percentage than is ordinarily attained when the operation is performed at irregular times, or principally for the relief of the most urgent symptoms of suffocation, and may be accepted as fairly illustrating all the advantages to be gained at the present time from the plan of operating so early.

Were it not for the constitutional state engendered by the disease, the death-rate from it would no doubt be reduced to the smallest proportions by the opportune performance of tracheotomy. But even as it is, with the organism thoroughly impregnated with the poison of the disease, and in consequence engaging to a large extent in the production of the dyspnœa, it is nevertheless oftentimes instrumental in relieving so much of it as may be dependent upon the local causes which more directly tend to precipitate a fatal issue.

A concensus of opinion is being very generally formed in favor of what may be called the *precautionary* performance of tracheotomy. But in any instance in which, for good and substantial reasons, the operation is delayed, it should not follow that it must be entirely disapproved of, even as a *dernier ressort*. The fact is, it may be appropriate at any period of the disease, but more particular when the *first* evidence of laryngeal distress is recognized. It does not appear to be the only, nor, it might be said, the prin-

cipal effect of the operation, to admit of a supply of oxygen to the blood, because, in satisfying any demand for that elementary principle by other than surgical means, similar good results do not so positively occur. I have had practical experience of this. Aside from anything else, it no doubt also affords relief from certain nervous impressions causing many of the distressing phases of instinctive action.

Without having had any experience with either intubation or deep tubing of the larynx, a substitute recently offered for it, I am inclined to think, after perusing the literature bearing thereupon, that as compared with tracheotomy they offer a more scientific and rational method of dealing with the majority of cases of diphtheritic laryngeal stenosis. The double advantage they possess of being most effective in the later stages of the disease, and of presenting no obstacle to the performance of tracheotomy at any time, not to speak of the fact that they are calculated oftentimes to obviate the painful necessity of shocking the feelings of family and friends, or to at least establish euthanasia, would appear to be sufficient to commend them above and beyond tracheotomy in almost every instance. How far they may hereafter succeed in revolutionizing that part of the treatment of diphtheria to which they are adapted cannot be foretold.

The main objection offered to them, of disturbing the invalid to an unreasonable degree, and especially of subjecting him to the dangers of the upright position during the time occupied in introducing the tube, are not, I think, comparable in seriousness to those which can be advanced in respect to the measures resorted to in performing the operation of tracheotomy.